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ENTOMOLOGICAL NEWS

VOL. XLVII. FEBRUARY, 1936 No. 2

At the International Congresses of Entomology and Zoology, of 1935.

By J. CHESTER BRADLEY, Cornell University, Ithaca, New York.

Twelve hours on the *rapide* from Paris had brought us, as midnight approached, to the Spanish frontier town of Irun. The Iberian trains run on tracks of a wider gauge, so must be boarded from the other side of the station, after passing the customs examination within the station. But we were of no mind to travel through Spain by night, so checked our baggages and, thrilled to be walking on Spanish soil, sought a hotel.

Early the next morning we were marvelling at the fast-changing landscape, as we travelled ever southward. The green vegetation of France and the foot of the Pyrenees became less and less as we came farther south, until we were in a sun-baked golden-brown land, into which the wide-spreading haciendas and monotone brown villages fit with perfect harmony. Strong was the illusion that this land was California, that we were perhaps crossing the Tejon Pass, or winding over the San Diablo Mountains toward the Kettleman Plains. Then it came over us how perfectly at home the Spanish settlers of California must have felt, and we felt a sense of sorrow that our own more blatant, less harmonious civilization should have crowded in to destroy in that state so lovely a reproduction of old Spain.

The day wore slowly on; the train grew crowded and very hot. In the late afternoon, as we wound very circuitously among the dry and barren hills, there stood before us on a confronting elevation the ancient city of Ávila, complete within its turreted walls. We could have reached Madrid that evening, but the Congress was not to commence for another day, so we descended and found quarters. Only Carcassone in

France can compare in the grandeur of its encircling medieval walls. Those of Ávila were built in the eleventh century and are still perfect, imposing, towered and battlemented. Into them the great Cathedral, severe in its grandeur, melts, as though itself a fortress.

On the next afternoon we took an autobus over the forested Sierra de Guadarrama to Madrid. Arriving in the cool hours of early evening, we found our hotel, headquarters for the American contingent, overlooking the very heart of the city, the pulsating Puerto del Sol. Here had already arrived the Dominion Entomologist, Dr. Arthur Gibson and his family, Dr. Wm. A. Riley of the University of Minnesota, Mr. and Mrs. H. G. Crawford of the Canadian Entomological Service, Miss M. B. Scotland of Albany State Teachers College, Dr. and Mrs. O. A. Johannsen of Cornell, and Dr. and Mrs. Stejneger of the U. S. National Museum. Among other Americans present but making their headquarters elsewhere, were Dr. Avinoff, Director of the Carnegie Museum, and his nephew, Dr. and Mrs. Charles Fox and Mr. B. Mayne of the U. S. Public Health Service, and Mr. Carpenter, a graduate student from the University of Oklahoma, shortly to assume the life of a Rhodes Scholar at Oxford. Messrs. H. L. Parker and C. P. Clausen, of the U. S. Bureau of Entomology, arrived later by motor from Hyères. The Congress being under the official auspices of the Spanish Government, eight of the Americans were accredited as official delegates of the United States Government. Imposing diploma-like documents in their possession attested to their status. (We found ours, and the notice that we were entitled to travel on a special diplomatic transport, on our desk at home, after our return.)

The opening informal reception was at half-past nine on the evening of our arrival in Madrid, Thursday, September the fifth. Eager to greet old friends, we hastened to it, and after the preliminaries of registration were attended to, found the entomologists gathered in the patio of the lovely new auditorium which was to serve as our headquarters. Though receptions may be at times boring, it is a delightful experience to

gather with those whose common interests we share, to find among them many an old friend, and to meet and talk with others whose names we have long known, if not their persons.

The Congress was presided over by the venerable Dr. Ignacio Bolivar y Urrutia, who throughout the week was the center of an admiring circle, wherever he went. Amongst those European entomologists who will be remembered by all Americans who were at the Ithaca Congress seven years ago were Messrs. Karl Jordan, F. W. Edwards, G. Fox Wilson, N. D. Riley and W. H. T. Tamms of England, Dr. Martini of Hamburg, A. Ball, and A. d'Orchymont of Belgium, H. C. Efflatoun Bey of Cairo, R. Jeannel, R. Minkiewitz from Warsaw, I. Tragårdh and N. A. Kemner from Sweden, G. Ceballos and the very busy and efficient secretary, Dr. Candido Bolivar y Pieltain from Spain.

One of the first things that we were to learn in Spain was that if Spaniards need sleep at night, they conceal the fact admirably. Functions are prolonged into hours that no longer are wee and small; and the Puerto del Sol seems a beehive of activity until near dawn.

On Friday morning the President of Spain presided at the formal opening session of the Congress. There were addresses of welcome from Dr. Bolivar, President of the Congress, and of felicitation from selected delegates from abroad. Afterwards we returned to our hotel for lunch, and in the afternoon were guests of the Local Committee of the Congress on an excursion made by autobus to El Pardo, a short way beyond the suburbs of Madrid. El Pardo is a former palace, and its chief glory is the wonderful collection of tapestries, especially many designed by Goya. Subsequently we saw Goya's original cartoons, from which the tapestries had been produced, at the Prado in Madrid, but the tapestries give a much finer, more brilliant impression than the originals. It was announced that we were to have a merienda—which is the Spanish word for any sort of picnic luncheon—at the Beach of Madrid. As Madrid is in the center of Spain and on no body of water, our curiosity was aroused. An artificial lake has been created, and the merienda,

an elaborate and delicious repast, was served in the refreshing coolness of the gathering dusk on the semi-circular terrace of a fashionable restaurant. Dusk deepened to darkness, and electric lights were turned on. Couples began to dance, and Spanish dances were improvised for our entertainment. Suddenly the lights went out, and the dancing was continued in the moonlight, later with a few improvised torches. Just the right touch of enchantment to perfect the loveliness.

Saturday was devoted to scientific sessions. The program provided for general sessions on four mornings, and for sectional meetings on three afternoons and one morning. Papers and discussion were in Spanish, Italian, French, English and German. There were doubtless gifted individuals who could understand it all, but the most of us not too practised in hearing foreign tongues, listened to the papers in our own language and wondered what the others were about. Of course the mere fact that it is a well-known man speaking lends interest in some cases, even when he can not be understood.

On Saturday evening the President of Spain received the congressionists formally at the Palace. Arriving a little late, we had to make our entrance quite alone. Up the grand marble staircase of the palace, the presidential guards drawn up on each side in their most brilliant uniforms, standing at present arms, we climbed interminably, feeling like an anticlimax. We bowed to His Excellency the President, and passed from room to room, marvelling at the royal furnishings, paintings, tapestries, objects of art. Perhaps we marvelled more genuinely at the wonderful array of Spanish delicacies, spread out on a grand buffet to tempt our appetities. But evidently entomologists, when foregathered internationally, require no tempting, for the buffets were so vigorously attacked that we felt a little ashamed. But of course that is what the buffet was for, and it would seem that we at least showed our hearty appreciation.

On Sunday all sessions were transferred from Madrid to the Escorial. A long caravan of autobuses transported us thither, thirty miles distant, and 1200 ft. upward. Those who were not desirous of attending the sessions were conducted in parties

by well-informed guides through the vast monastery of San Lorenzo el Escorial. This gloomy edifice was constructed by the bloody King Philip II. between the years 1563 and 1584; and from here he supervised the formation of the armada to support his claim to the Throne of England. It has been described as "a miserable place for a miserable gouty vampire whose ghostly bigot soul still seems to bat around the funeral urns like the twilight shades closing over a dying monarchy."

Very impressive however, deep within a great crypt, were the tombs of the monarchs of Spain, some empty to receive the mortal remains of monarchs yet unborn—and who perhaps will now never be born. Apart from these, exquisitely wrought in marble, white or colored, the many tombs of members of the royal family who had themselves never reigned. Our luncheon was served in the dining hall of a boarding school. Instead of remaining for the afternoon sessions, some of us returned to Madrid in time to see a bull-fight, since that day would be our only opportunity.

On Monday morning the University of Madrid conferred the doctorate "honoris causa" on Dr. Jeannel and others. In the evening there was a formal reception by the Mayor of Madrid given in the city hall. The Municipal Band rendered a delightful concert of Spanish music in our honor. The program also included Rimsky-Korsakov's Capricha Espanõl, which seemed doubly appropriate to the occasion. Afterwards there was the usual elaborate buffet feast.

Tuesday was occupied in an all-day excursion to the Sierra de Guadarrama. The Alpine biological station was visited, and there was plenty of opportunity for collecting, although it was in dry season. Later in the day LaGranja and the mellowly medieval Segovia were visited.

On Wednesday afternoon we visited Toledo by autocar, most wonderful of all Spanish cities. So short a visit for such a spot was tantalizing. We had only time to enjoy its incomparable setting, overlooking the Tagus, to visit and admire the house of El Greco and his museum, to see workmen producing the articles of steel, inlaid with gold, for which Toledo is famed,

and to visit the majestic cathedral, the only church in Christendom where the mozarabic ritual still survives.

Back again at Madrid, in the evening (beginning at half past ten) we were entertained by a program described as a "Fiesta of Spanish Art." The first number was a theatrical performance, "The celebrated life and the death of General Marlborough," a delicious parody of Italian opera, very, very cleverly staged, and exceedingly droll. It was followed by Spanish songs and dances, lasting far into the night.

At the closing session of the Congress, on Thursday afternoon, it was decided that the next session, in 1938, should be held in Berlin, under the presidency of Dr. E. Martini. The last event of the Congress, on Thursday evening, was a thoroughly enjoyable and very colorful banquet, held at the Ritz, Madrid's finest hostelry. The Congressionists were guests of the local committee on this occasion.

We all left Madrid with real regret and with most delightful impressions of our sojourn. Everyone felt that the energetic Spanish Committee had done everything possible to provide for the comfort, convenience and entertainment of those attending. Everything had run smoothly, efficiently, without any hitch or confusion. The buildings in which the meetings were held were adequate, modern and peculiarly attractive. Close by were a group of pleasant dormitories, where many of those in attendance availed themselves of opportunity to stay. And just beyond was the very adequate building housing the museums of zoology and of geology. Many an hour was stolen from the meetings by one member or another to examine the rich entomological collections housed there. And finally one can not leave unmentioned the real attractiveness of the city of Madrid itself, which must be pronounced one of the most pleasing of the capitals of Europe—not a sleepy medieval city, like some of its picturesque neighbors, but a very modern, busy metropolis, of wide avenues, magnificent buildings, lovely parks.

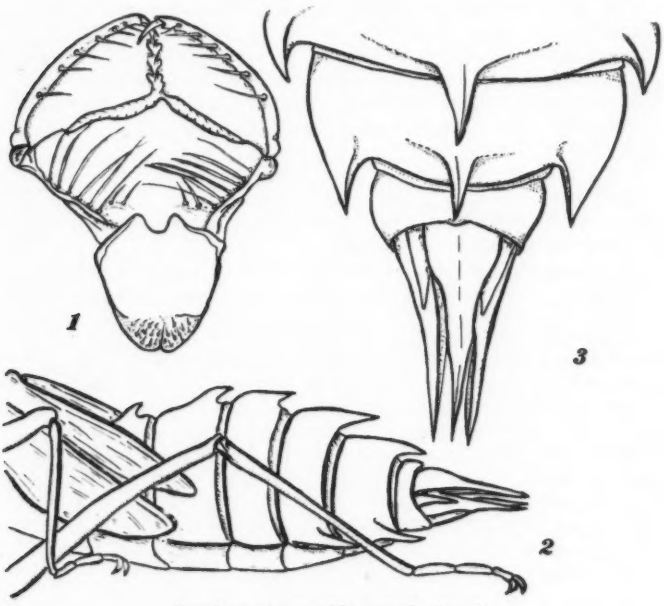
(To be continued.)

The Immature Form of Brachymesia gravida, with Notes on the Taxonomy of the Group (Odonata: Libellulidae).

By C. FRANCIS BYERS.[1]

The writer has recently come into possession of reared material of *Brachymesia gravida* (Calvert). Inasmuch as the immature forms of the various species of this genus have remained unknown until the present writing, the following description and necessary taxonomic notes have been prepared.

Description of nymph. (Based on four reared exuviae.) Total length 26 mm.; maximum width (venter of segment 6) 8 mm. Nymphs clean and smooth, almost devoid of pubes-



Brachymesia gravida nymph, female.
Alachua County, Florida.

Fig. 1. Labium. Fig. 2. Abdomen, lateral view. Fig. 3. Terminal segments and appendages, dorsal view.

[1] Contribution from the Department of Biology, University of Florida.

cence; light in color, marked irregularly with darker brown; general appearance long and robust, somewhat suggestive of the Trameini.

Head about two-thirds as long as broad, widest across the eyes, which are fairly prominent and distinctly lateral in position (not capping the anterio-lateral angles of the head). Head lacking pubescence except for a mat of very short spine-like hairs along the hind margin extending ventrad to the region of the occiput and beneath the eyes.

Hinge of the labium reaching to slightly below the anterior margin of mesothorax. Mentum slightly broader than long; median border evenly contoured, projected centrally into a low rounded tooth-like elevation (Fig. 1); mental setae 8, arranged in two series on each side of the mentum, one series consisting of 6 long pale setae situated very near the lateral mental margin (setae nos. 3-4 longest), the other series consisting of 2 very short setae situated deeper and mesad in the bowl of the mentum. Lateral setae 6; crenulations of the lateral lobes 5-8, the first 5 below the movable-hook well developed, a little over half as high as long, each bearing a group of one large and occasionally 1 or 2 smaller setae, the remainder of the crenulations low and irregular.

Legs moderately long and thin; hind femora and tibiæ each 8 mm. long, tarsus 3.5 mm., tarsal claws 1 mm.; all femora with 2 or 3 brown encircling bands. Hind wing pads reaching to the base or middle of segment 6.

Abdomen elongate oval, greatest width (8 mm.) at segment 6, distinctly wider than thorax. Dorsal hooks on segments 3-9; those on 7-9 long, straight, compressed and acute; the dorsal hook on segment 9 reaching over the apex of segment 10; segment 10 with a short dorsal median projection (Fig. 2). Lateral spines on segments 8-9; those on 9 reaching nearly to the base of the abdominal appendages; those on 8 to about the basal third of 9 (Fig. 3). Abdominal appendages 3 mm. long (three times the length of the lateral margin of segment 10, or about equal to the length of the dorsum of 8 + 9). Median appendage triangular, about three times as long as broad; inferior appendages of nearly the same length; lateral appendages approximately one-third the length of the inferiors and the median. Abdomen devoid of pubescence.

Material. FLORIDA, Alachua County: Newman's Lake, 4 exuviae of reared females, May 15, 1935, (J. D. Kilby); Warburg Lake, 3 early instar nymphs, 1934, (R. P. Trogdon). Pinellas County: St. Petersburg, 1 nymph (18 mm.), November 30, 1933 (H. K. Wallace).

The four exuviae from which the foregoing description was drawn, were collected, along with the female adults which emerged from them, by Mr. John D. Kilby, graduate student at the University of Florida, at Newman's Lake near Gainesville. Mr. Kilby states that he took the specimens in an emerging condition from floating vegetation (pond-lilies) while he was collecting amphibia at night. The nymphs were placed in separate paper bags and brought into the laboratory where the emergence and the development of the adults was consummated. *Perithemis seminole,* male and female, was taken emerging at the same time.

Dr. Elsie Broughton Klots in her paper on the dragonflies of Porto Rico and the Virgin Islands,[2] has described a number of dragonfly nymphs on supposition, among them *Brachymesia.* The nymph so described and figured differs so widely from the present writer's material as to make it hardly likely that it belongs to the genus *Brachymesia,* even allowing for a difference of species (*B. herbida* vs. *B. gravida*). She speaks of the nymph (page 50) as being "Most easily recognized by the hairy body and the peculiar eyes," and adds "Eyes small and on the superior surface of the head." The lateral setae of the labium are five in number and the mental setae in all number around 8-13. Dr. Klots further states "No dorsal hooks, but with median tufts of short hairs." These points are quite at variance with *Brachymesia* and off-hand suggest *Erythrodiplax.*

In the same paper, Dr. Klots also described the nymph of *Miathyria marcella* on supposition. The nymph so described closely resembles the reared material of *Brachymesia gravida* in the writer's possession, the chief differences being in the number of lateral and mental setae. *Brachymesia herbida* (Gundlach) is the species of the islands, while *Brachymesia gravida* has long been known as an inhabitant of the United States. *Miathyria marcella* was first recorded from the United States by Dr. James G. Needham[3] in 1933 on the basis of nymphal material collected near Ft. Pierce, Florida.

(To be continued.)

[2] Insects of Porto Rico and The Virgin Islands. Odonata or Dragonflies. Scientific Survey of Porto Rico and the Virgin Islands, Vol. XIV, Pt. 1. N. Y. Acad. of Science, 1932.

[3] New Records of Odonata from the United States. Ent. News, page 98. April, 1933.

Description of the Male of Calendra dietrichi Satht (Coleoptera : Curculionidae).

By A. F. SATTERTHWAIT, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

This species was described in ENTOMOLOGICAL NEWS, vol-44, 1933, pages 210-211, from an adult female reared March 4, 1932, from a larva in rice stubble from Wiggins, Mississippi, collected by Mr. Henry Dietrich. A second female, collected by Mr. Dietrich, was in hand when the species was described. No male was found, however, until the writer was privileged to study the general collection of *Calendra* from the Museum of Comparative Zoology, loaned by Dr. P. J. Darlington, Jr.

CALENDRA DIETRICHI Satht.

♂. The description of front tibia, pronotum, beak, head, elytra, pygidium, last ventral sternite, and venter, and of color, as noted for the type female applies equally well to this male, except that the impunctate areas on the pronotum of the male would not accommodate two additional punctures, and that the elytral punctures of interval 2 are about 15 in number in the basal half, of interval 3 about 24 in basal half, and of striae 1 and 2 about 10 each in basal half. The hairs on the pygidium and on the last ventral sternite are of uniform length, stiff, rufous. The first and second abdominal sternites are slightly depressed.

Measurements of male in millimeters. Total length 8.2. Beak: Length about 2.55, width at middle 0.31, width at apex about 0.55, width at base 0.92, least depth about 0.63. Pronotum: Length about 2.55, width 3.27. Elytra: Length 4.45; humeral width 3.62.

The label on the specimen reads: "Fl[orid]a. W. G. Dietz Colln."

Italian Malarial Mosquitoes.

In southern Italy about 88 per cent of the farmers live under urban conditions. They live in towns and go back and forth to their work each day. Around these many scattered population centers it has become standard practice to spread Paris green on all anopheline breeding places within one and one-half miles. Anopheline breeding has been made a nuisance under the law and land-owners are responsible for eliminating it within one and one-half miles of inhabited centers.—ROCKEFELLER FOUNDATION Annual Report for 1934.

Facts Concerning the Rearing of Tenebrionidae.[1] (Coleoptera).

By FRANK E. BLAISDELL, Sr., Stanford Medical School and Associate in Research California Academy of Sciences. San Francisco, California.

The purpose of this communication is to report some facts relating to the successful rearing of certain species of Tenebrionidae, that are of importance to systematic and economic entomologists alike, namely: *Eleodes, Coniontis* and *Blapstinus*. The latter are known as "bean-girdlers." The main reason for rearing the several species, has been to study the larval and pupal characters for taxonomic differentiation. Certain of the observations revealed the cause of some of the deformities that occur in adult beetles.

In 1927, the author began trying to rear different species of *Blapstinus,* but without success for four years. Quite recently while collecting in the vicinity of Watsonville, Santa Cruz County, California, there was found inhabiting the leaf-mould and vegetable debris of a backyard, numerous adults of a species of *Blapstinus* and small cylindrical larvae. Believing that there was some relationship between them, a series of each were collected separately and a quantity of the leaf-mould and coarser vegetable matter was gathered and all taken to my laboratory. Separate breeding jars were prepared for the larvae and adults. In due time numerous larvae were observed in the jar with the adults, and the larvae in the other jar pupated. A few imagos were permitted to emerge. The success attained in obtaining larvae and pupae, is to be attributed to the using of leaf-mould and vegetable debris secured from the habitat of the species.

Before considering other facts it is desirable to describe how the breeding jars are prepared: Mayonnaise jars are regularly used or the smaller fruit jars. These are filled half-full of leaf-mould and powdered cow-chip (the latter serves as pabu-

[1] Read before the conjoint meeting of the Ent. Soc. of Amer., and Pacif. Coast Ent. Soc., June 22, 1934, during the meeting of the Pacific Div. of the A.A.A.S., held at the Univ. of Calif., Berkeley.

lum), equal parts well mixed with some of the coarser vegetable debris placed on top. The contents of each jar must be kept damp by throwing water with a pipette, against the inner surface of the jars; the water gravitates to the bottom of the soil, the central portion remaining dry. In this way three zones are created: An outer and deep damp area, an inner or dry and between the two an intermediate one. The larvae can select whichever area they prefer. The soil must be dampened every second or third day according to the degree of evaporation. Too great dryness or dampness must be avoided; the needs of each species must be carefully studied. In the beginning of the research the soil and pabulum were not sterilized and this later became the source of much trouble and disaster.

After several species were under observation, it was noticed that in some of the jars the larvae in particular were more or less restless, coming to the surface instead of remaining in the soil. Once each week the contents of the jars should be poured out on paper: the upper or loose and drier part first, then the deeper or damp portion; each is to be carefully examined and notes recorded. During the examination the larvae and adults are placed in separate glass receptacles; cast larval skins put in vials for study, eggs when seen should be measured for each species and camera lucida outlines made. In the beginning, when eggs and newly hatched larvae are present, examinations should not be made too often. The damp soil should be first returned to the jars, followed by the drier part. In every instance the larvae and adults are examined under the microscope and then returned to their jars. The examinations also showed the presence of mites and the degree of infestation, not only in the soil, but upon the larvae and adults as well.

As time went on no eggs or larvae were found, or in very limited number, in the more heavily infested jars; in others larvae were abundant. In checking up on the results of the examinations, it was found that the difference in the number of larvae in the several jars was in direct proportion to the degree of mite infestation. Microscopic examination of the soil under low power showed shriveled eggs and even clumps of mites about others, as well as on the young larvae. There was not

the least doubt but that the mites were feeding on the eggs and larvae; the older larvae were able to fight off the mites to a greater or less extent. The continual annoyance by the mites was the cause of the restlessness in the larvae mentioned above.

Sterilization of the contents of the jars was commenced after removal of the older larvae and adults; this was done by placing the jars on the laboratory radiator for twenty-four to forty-eight hours; during this time they became so hot that they could not be handled by the naked hand. Jars containing eggs and young larvae could not be treated that way and had to progress as best they could.

As a part of the research it was desirable to study the effect of the mite infestation upon the insects during their entire development. In infested jars when pupae began to appear and, later, adults to emerge, a large per cent of the imagos were more or less deformed. Some had shriveled elytra and appendages in all degrees of atrophy. At the time of weekly examinations pupae were found covered with mites, chiefly on the elytral pads and legs; larvae so weakened that they could not cast the larval skin at time of ecdysis or of pupation and imagos dead in the act of emergence.

The soil in a number of the jars became a teeming mass of mites. In fact, the mites were so abundant that they could be gathered with broad forceps and preserved in alcohol so as to partly fill a drachm vial. Sterilization brought the infestation rapidly under control. At the weekly examinations the larger larvae and adults were sterilized with a very soft camel-hair brush, moistened with paraffine oil or alcohol, but not in sufficient amount to enter the spiracles; never with any free oil or alcohol, although at first a few larvae and adults were destroyed in that way.

During the height of the infestation adult *Elcodes* became covered by a whitish coating that had a very faint bluish tinge, due to the young or traveling mites. The parts not covered by them were where the insect could brush them off with its legs. Under such conditions the oil and alcoholic brushing served a good purpose. Moisture is essential for the mites, the drier cultures were scarcely infested.

In order to obtain a knowledge of the species of mites, slides were prepared for microscopic examination and sent to Mr.

Nathan Banks, of the entomological department of Harvard University.

Mr. Banks reported as follows: "In one of the slides is a species of *Tyroglyphus*. There is one female very similar to *Tyroglyphus farinae* De Geer, and a host of the hypopial nymphoid form. This form does not feed, but attaches to an insect where it lives in hopes of being transported to a similar spot where it will drop, moult and develop to the adult."

"In slide two is a *Rhizoglyphus* sp. There are several very similar forms. This belongs to the same family Tyroglyphidae, and has the same habits, most of the specimens on the slide are immature; it also has a hypopial or traveling nymph."

"Both of these mites feed on decaying vegetable and animal matter and breed very rapidly. Some on mushrooms. I doubt if they feed on a healthy grub, but possibly. There is another mite that is often a pest in breeding jars—*Pediculoides*, the female becomes a large whitish globule. This will attack living healthy larvae and kill them, and will continue to feed on the decaying matter."

Summary.

In many cases for successful rearing of certain species of Tenebrionidae, it is necessary to have soil, vegetable debris and pabulum from the area inhabited by the species.

All soil, leaf mould, vegetable debris and pabulum should be sterilized before stocking a breeding jar, even to cleaning the guests, when possible.

It is an undoubted fact, verified by abundant observations, that mites do attack the eggs, young larvae and pupae, destroying the eggs and larvae, as well as causing deformity of the imagos or death of the pupae, by undermining their strength, and of full grown larvae, resulting in their inability to complete their metamorphoses.

The above facts prove that mites may be beneficial or injurious agents, depending on whether or not their hosts are injurious or beneficial.

The above facts are of value to economic entomologists in their fight against insect pests; they also account for many deformities observed in adult beetles collected in the field.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., FEBRUARY, 1936.

Entomological News: a Statement and an Appeal.

With the number for December, 1935, ENTOMOLOGICAL NEWS completed its forty-sixth annual volume. In earlier years, corresponding to the more favorable economic condition of the United States, and perhaps of the world in general, it enjoyed, like other entomological journals, a larger income and published more pages and illustrations than in the last decade. One feature, peculiarly its own among periodicals devoted to the study of insects, it has, however, been able to maintain almost unimpaired. This is its monthly classified list of the current entomological literature.

Whether the NEWS can continue its existence will depend on increased support. To make this evident we present herewith figures showing receipts and expenditures for the year 1935.

RECEIPTS

Annual subscriptions (353)*		$1,042.10
Contributions for illustrations	$57.12	
Contributions for extra pages	25.60	
Advertisements	117.30	
Sale of back numbers and miscel.	27.24	
		227.26
Total receipts		$1,269.36

EXPENDITURES

Printing Nos. 1-10 text and index		$1,242.88
Printing illustrations		64.03
Postage, regular edition	$41.00	
Postage, on sales	8.40	
Postage, on authors' separates	4.70	
		54.10
Printer's corrections		45.30

* Resident members of the Americal Entomological Society enjoy a special rate of $1.50 per annual volume.

Printing extra pages		31.80
Mailing envelopes	$28.00	
Postal card notices, stencils, etc.	12.40	
		40.40
Back numbers and refund		10.00
Total expenditures		$1,488.51

The excess of expenditures over receipts is $219.15.

In past years the American Entomological Society has contributed to reduce such deficits. Owing to decreased income, the Society is no longer able to do this, as its prior obligation is to its Transactions which date back sixty-eight years.

The editors of the NEWS receive no salary, honoraria or even free copies of the NEWS; all of them are subscribers, one subscribes for two copies. Books and papers sent to the NEWS for review are placed in the Society's library; they do not serve as perquisites for the editors.

Seventy-three additional subscribers to the NEWS would wipe out the 1935 deficit. One hundred additional subscribers would not only do that but also enable the NEWS to begin furnishing illustrations for articles.

It rests with our subscribers. Will YOU induce your non-subscribing entomological friends to subscribe and enable this journal to keep going?

THE EDITORS.

Royal Entomological Society of London. Stylops.

Contributors to *Stylops* are advised that, as from January 1, 1936, that journal will be incorporated with the *Proceedings of the Royal Entomological Society of London* as *Series B.*, and as from that date Dr. S. A. Neave will relinquish the editorship, which will be taken over by the Secretary of the Society.—41, Queen's Gate, South Kensington, London, S. W. 7. December 2, 1935.

Entomological Literature

COMPILED BY V. S. L. PATE, LAURA S. MACKEY and E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual volume, and in some cases the part, heft, &c. the latter within ( ) follows; then the pagination follows the colon :

All continued papers, with few exceptions, are recorded only at their first installments.

(*) Papers containing new forms or names not so stated in titles, have an * within parentheses thus (*) following the pagination of reference to paper.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. Titles of papers containing new forms or new names will be indicated by an asterisk within parentheses at end of reference, (*).

Papers published in the Entomological News are not listed.

GENERAL.—Blair, K. G.—Wegener's theory of the movement of the continents. [Trans. Soc. Brit. Ent.] 2: 151-162, ill. **Carpenter, G. D. H.**—Courtship and allied problems in Insects. [Trans. Soc. Brit. Ent.] 2: 115-136. **Englehard, G. P.**—Entomological observations at Hartsdale, N. Y. [19] 30: 203. **Forsius, R.**—Obituary by A. Tullgren. [28] 56: 189-190, illus. **Franz, E.**—Der VI Internationale Entomologen-Kongress zu Madrid. [17] 53: 49-50. **Poulton, E.**—Recorded statements, published in 1613 and 1764, that birds were trained to catch butterflies. [Proc. R. Ent. Soc. Lond.] 10: 45-46. **von Tunkl, F. F.**—Ueber die rolle der insekten in den komödien des Aristophanes. [17] 53: 44-46; 53-56. **Williams, C. B.**—The times of activity of certain nocturnal insects, chiefly Lepidoptera, as indicated by a light-trap. [36] 83: 523-555, illus. **Winn, A. E.**—Obituary by G. A. Moore. [4] 67:255.

ANATOMY, PHYSIOLOGY, ETC.—Anderson, J. A. T.—The morphology and anatomy of the immature and adult stages of Oligotrophus cleariae (Cecidomyidae). [93] 1935: 405-420, ill. **Beadlo & Ephrussi.**—Transplantation in Drosophila. [Proc. Nat. Acad. Sci.] 21: 642-646. **Behrends, J.**—Ueber die entwicklung des lakunen-, ader-, und tracheensystems wahrend der puppenruhe im fluegel der mehlmotte Ephestia kuhniella. [46] 30: 573-596, illus. **Bequaert, J.**—Presocial behavior among the Hemiptera. [19] 30: 177-191. **Cockayne, E. A.**—The origin of gynandro-

morphs in the Lepidoptera from binucleate ova. [36] 83: 509-521. **Creager & Spruijt.**—The relation of certain fungi to larval development of Eumerus tuberculatus (Syrphidae) [7] 28: 424-436, illus. **Denis, J.**—Quelques remarques sur les sens du toucher et de la vue chez les Araignees sedentaires. [25] 40: 260-263. **Deonier & Richardson.**—The tarsal chemoreceptor response of the housefly, Musca domestica, to sucrose and levulose. [7] 28: 467-474. **Flanders, S. E.**—An apparent correlation between the feeding habits of certain Pteromalids and the condition of their ovarian follicles. [7] 28: 438-444. **Hallock, H. C.**—Movements of larvae of the Oriental beetle through soil. [6] 43: 413-425, ill. **Hawley & White.**—Preliminary studies on the diseases of larvae of the Japanese beetle (Popillia japonica). [6] 43: 405-412. **Hendee, E. C.**—The role of fungi in the diet of the common damp-wood termite, Zootermopsis angusticollis. [Hilgardia] 9: 499-525. **Hu & Feng.**—The morphological studies on the mouth-parts of some Diptera. [Peking Nat. Hist. Bull.] 10: 117-125, illus. **Hundertmark, A.**—Die entwicklung der fluegel des mellkaefers Tenebrio molitor, mit besonderer beruecksichtigung der haeutungsvorgaenge. [46] 30: 506-543, illus. **Imamura, S.**—On the olfactory and visual senses of Anthrenus verbasci (Dermestidae). [Bull. Imp. Sericult. Exp. Sta. Suginami-ku, Tokyo] 9: 1-22, illus. **Janda, V.**—Contribution a l'etude des changements periodiques de la coloration chez Dixippus morosus (Orth: Phasmid.). [Mem. Soc. R. Sci. Bohem. Class. Sc.] Ann. 1934, No. 12, 30 pp., illus. **Kaston, B. J.**—The slit-sense organs of spiders. [Journ. Morph.] 58: 189-209, illus. **Kuntzo, H.**—Die fluegelen entwicklung bei Philosamia cynthia, mit besonderer berucksichtigung des geaders, der lakunen und tracheensysteme. [46] 30: 544-572, illus. **Kuwana, Z.**—Morphological studies of the nervous system of the silk worm, Bombyx mori. II: The innervation of the alimentary canal of the larva. [Bull. Imp. Sericult. Exp. Sta. Suginami-ku, Tokyo] 9: 23-34, illus. **Latter, O. H.**—A reason for the order in which the queen wasp constructs the comb; a method for computing the number of cells in a comb, and an instance of the limitation of the instincts of wasps. [Proc. R. Ent. Soc. Lond.] 10:74-78. **Lopes, H. deS.**—Sobre uma nova technica para criacao de larvas de dipteros. [105] 5: 502. **Magne de la Croix, P.**—La locomocion de las lombrices, su relacion con de las larvas de insectos. [106] 120: 89-92, illus. **Maki, T.**—A Study of the Musculature of the Phasmid Megacrania tsudai (Orthop.). [Mem. Fac. Sci. & Agr. Taihoku Imp. Univ. Formosa] 12: 181-279, illus. **Maloeuf, N. S. R.**—The role of muscular

contraction in the production of configuration in insect skeleton. [Journ. Morph.] 58: 41-86, illus. **Mergelsberg, O.**—Ueber die postimaginale entwicklung (physogastrie) und den hermaphrodititismus bei afrikanischen Termitoxien (Dipt.). [89] 60: 345-398, illus. **von Mitis, H.**—Zur Biologie der Corixiden: Stridulation. [46] 30: 479-495, illus. **Oosthuizen, M. J.**—The effect of high temperature on the confused flour beetle. [Univ. Nebr. Agr. Exp. Sta.] Tech. Bull. 107: 45 pp., illus. **Parks, Hal B.**—The imaginal discs of Drosophila melanogaster. [19] 30: 192-196, illus. Gregariousness in Papilio philenor. [19] 30: 196. **Paulian, R.**—Sur l'atrophie des ailes et des élytres chez les Coléoptères. [Miscell. Ent.] 36: 94-96. **Piepho, H.**—Ueber die temperaturmodifikabititat und genetik zweier rotaugiger rassen der mehlmotte Ephestia kuehniella. [87] 133: 495-517, illus. **Reynolds, J. M.**—A new contribution to the problem of segmentation in the Arthropoda. [16] 30: 373-382. **Saz, E.**—Maravillas del instinto que guia a los animales en el cuidado de sus hijos. [Bol. Soc. Ent. España.]. 17: 39-47. **Shibata, K.**—Studies on the super-cooling death of Insects. [Mem. Fac. Sci. Taihoku Imp. Univ. Formosa] 16: 91-103. Studies on the death-temperature of a fruit-fly, Chaetodacus cucurbitae, at the frozen state and the influence of supercooling upon its temperature. [Mem. Fac. Sci. Taihoku Imp. Univ. Formosa] 16: 105-116. **Stuart, R. S.**—The anatomy and histology of the malphigian tubules and the adjacent alimentary canal in Melanoplus differentialis. [Jour. Morph.] 58: 173-188, illus. **Tillyard, R. J.**—Evolution of progoneate and opisthogoneate types in the Myriapod-Hexapod group of terrestrial Arthropoda. [Amer. Jour. Sci.] 30: 438-449. **Toth, L.**—Beitrage zur Kenntnis der Aphidspeicheldruese. [46] 30: 496-505, illus. **Trojan, E.**—Zur frage der oligomerie weiblicher Akuleaten (Hym.). [46] 30: 597-628, illus. **Weyer, F.**—Epitheleerneuerung im mitteldarm der Termiten wahrend der hautung. [46] 30: 648-672, illus.

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1935, at Kobarima, N. W. District, British Guiana, by Dr. J. G. Myers. [Proc. R. Ent. Soc. Lond.] 10: 70-71.

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amerikanischen Sphingide Celerio lineata. [18] 29: 349-352. (*). **Gaines & Campbell.**—Dyar's rule as related to the number of instars of the corn ear worm, Heliothis obsoleta, collected in the field (Lepidop.) [7] 28: 445-461, illus. **Haywood, K. J.**—Los Pyrginae Argentinos. Adiciones y anotaciones (Grypocera). [106] 119: 256-261. Los Pamphilinae Argentinos. Adiciones y anotaciones. [106] 119-262-266. **Hoffmann, F.**—Beitrage zur Lepidopterenfauna von Sta. Catharina. [17] 53: 46-48. (Cont.). **Koehler, P.**—Lepidoptera Bergiana. A proposito de "Dirphia lauta." [106] 119: 245-255, illus. **Myers, J. G.**—Aquatic "Wooly bear" caterpillars, Pleasant Hope, near Parika, Lower Essequibo River, British Guiana. [Proc. R. Ent. Soc. Lond.] 10: 65-70. **Parks, H. B.**—Dione vanillae on Passiflora tenuiloba. [19] 30: 213. **Reuss, F. A. T.**—Die spinosa-formen der puppen von Pieris brassicae und rapae. [18] 29: 331. **Richards, A. G.**—Forbesia—A new genus of American Erebinae (Noctuid.). [4] 67: 264-267, illus. **Whelan, D. B.**—A key to the Nebraska cutworms and army-worms that attack corn. [Univ. Nebr. Agr. Exp. Sta.] Res. Bull. 81: 27 pp., illus. **Travassos, L.**—Variacoes e intersexualismo em especie do genero Syntomeida (Euchromiid.). [111] 30: 437-451, illus.

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5: 470-479, illus. (S*). **Lutz & Castro.**—Sobre algumas novas especies de motucas do genero Esenbeckia. [111] 30: 543-562. (S*). **Macfie, J. W. S.**—A new Ceratopogonid from British Guiana. [107] 4: 265, illus. **Reinhard, H. J.**—North American Two-winged Flies of the genus Doryphorophaga, (Tachinidae). [6] 43: 387-394. (*). **Townsend, L. H.**—The mature larva and puparium of Physocephala sagittaria (Conopidae). [5] 42: 142-148, illus. **Wilcox & Martin.**—The genus Coleomyia (Asilidae). [19] 30: 204-213, illus. (*).

COLEOPTERA.—Barthe, E.—Procédés nouveaux pour la préparation des Coléoptères. [Miscell. Ent.] 36: 81-83. **Chagnon, G.**—A preliminary list of the Coleoptera found on Polyporus betulinus. [4] 67: 278. Coleopteres de la Province de Quebec. Scarabeides. [98] 62: 333-345, illus. **Darlington, P. J.**—Three West Indian Carabidae in Florida. [7] 42: 161-162. **Dillon, L. S.**—Notes on some Hololeptinae from South America. [7] 28: 462-466. (*). **Fiedler, C.**—Die rüsslergattung Coelosternus (Cryptorhynchini). [Ent. Nachricht.] 9: 117-148. (*S). **Goncalves, C. R.**—Sobre a biologia de Sitophilus linearis (Curculionid.) [105] 5: 414-420, illus. **Kato, M.**—On the chestnut weevil, Curculio dentipes, especially on the larval stage. [Sci. Rep. Tohoku Imp. Univ. Japan] (4) Biol. c10: 515-554, illus. **Linsley, E. G.**—Notes and descriptions of new or little known Neotropical Ibidionini (Cerambyc.). [105] 5: 479-486, illus. **Potter, C.**—The biology and distribution of Rhizopertha dominica (Bostrychidae). [36] 83: 449-482, illus. **Saylor, L. W.**—New Neotropical Scarabaeidae of the genus Phyllophaga. [105] 5: 496-501. **Schedl, K.**—Neue Platypodiden aus Afrika, Neuguinea, Zentral-und Südamerika. [Ent. Nachricht.] 9: 149-154, cont. **Schedl, K. E.**—New bark-beetles and ambrosia-beetles. [107] 4: 270-276. (S). **Schmidt, C. T.**—Biological studies on the Nitidulid beetles found in pineapple fields. [7] 28: 475-511, illus. **Spaeth, F.**—Mitteilungen über neue oder bemerkenswerte Cassidinen aus dem Senckenberg-Museum. [17] 53: 65-69, ill., cont. (*S). **Valentine, J. M.**—Specialization in Steniridia, a group of Cychrine beetles (Carabid: Scaphinotus). [J. Elisha Mitchell Sci. Soc.] 51: 341-375, illus. (*).

HYMENOPTERA.—Banks, N.—The males of certain Priocnemis (Pompilidae). [7] 42: 162. **Beeson & Chatterjee.**—Biology of the Braconidae. [Indian For. Rec. Ent.] 1: 105-138, illus. **Benson, R. B.**—On the genera of Orussidae. [Occ. Pap. Rhodesian Mus., Bulawayo No. 4] 10 pp.,

illus. (*). **Costa Lima, A.**—Sobre dois microhimenopteros parasitos de ovos de "Mormidae poecila". [O Campo] Feb. 1935. 2 pp., ill. **Jacoby, M.**—Erforschung der Struktur des Atta-Nestes mit Hülfe des Cementausguss-Verfahrens. [105] 5: 420-424, illus. **de Leon, D.**—The biology of Coeloides dendroctoni (Braconidae) an important parasite of the mountain pine beetle. [7] 28: 411-424, illus. **Malaise, R.**—New genera of Tenthredinoidea and their genotypes. [28] 56: 160-178, illus. (S). **Michener, C. D.**—Some Pacific coast Panurginus (Apoidea). [4] 67: 275-278 (*).

SPECIAL NOTICES.—Balduf, W. V.—The Bionomics of Entomophagous Coleoptera. Planographed by John S. Swift Co., Inc., 220 pp., illus. **Coléoptères de France,** Histoire naturelle des. Tome 4. Polyphaga: Rhynchophora. Par G. Portevin. [59] XVIII: 500 pp., ill., col. pls., 1935. **Herrick, G. W.**—Insect Enemies of Shade-Trees. Comstock Publ. Co., 416 pp., illus. **Rayment, Tarleton.**—A Cluster of Bees. Endeavour Press, Sydney, Australia, 752 pp., illus. **Wu, C. F.**—Second supplement to "The Catalogue of Chinese Insects." [Peking Nat. Hist. Bull.] 10: 151-161.

An Unusual Mating of Velvet Ants (Hymen.: Mutillidae).

While collecting insects near Atlanta, Georgia, on July 24, 1935, I observed a very unusual mating of velvet ants at 5:20 P. M. I saw a large number of males flying under a small pine tree. The tree was about ten feet tall and the limbs came to within two feet of the ground. There were several small wild plum bushes growing under the pine tree, making sweeping with an insect net almost impossible.

There were at least twenty-five males flying under the pine tree and amongst the wild plum bushes. I crawled up into the center of the swarm of males, and discovered a ball of males rolling and tumbling upon the ground. This tumbling mass was about one and a half inches in diameter. When I picked up the tumbling mass, they all flew away except a pair in copulation. There must have been at least fifteen males in this rolling, tumbling mass. Within a minute after I placed the pair in a cyanide bottle, not a male was to be seen anywhere. I waited near the pine tree for about fifteen minutes and captured four males that returned. This swarm of males were all *Mutilla* (*Timulla*) *briaxus* Blake.

During the afternoon I took several males of other species, but had not taken nor seen a single *briaxus*. They must have all been at the mating swarm. I watched the males flying for

about five minutes before I crawled up under the pine tree. They would fly down to the tumbling mass (however, I could not see the mass from my position) and others would fly up. There must have been at least forty males flying under the pine tree, and in the rolling, tumbling mass upon the ground. I was greatly surprised to find the males vanish out of sight almost immediately after I had placed the pair in copulation in the cyanide bottle.

P. W. FATTIG, Emory University, Emory University, Georgia.

New Butterfly Record for United States. (Lepid.: Nymphalidae).

During a recent collecting trip in Itasca Park, Minnesota, an interesting butterfly record was obtained. A specimen of *Erebia discoidalis* Kirby (Nymphalidae) was taken by the writer near Bohall Lake in the park on May 31, 1935. Itasca State Park is located in northern Minnesota about 220 miles northwest of the Twin Cities and about 120 miles south of Rainy Lake on the Canadian border.

The butterfly was taken in a rather small, swampy clearing surrounded by willows in a dense forest of mixed hardwoods and conifers. It was in fresh condition and apparently had emerged recently. The fresh condition of the specimen and the early date of its capture would seem to indicate that the butterfly is native to Minnesota and not a chance migrant from farther north.

According to W. J. Holland in "The Butterfly Book" (Revised edition 1931), the Red-Disked Alpine, as it is commonly known, is a common butterfly of the far North. It is found from Hudson Bay in the East to Alaska on the Pacific Coast. The species was described by Kirby about 1837 from several specimens taken at Cumberland House, Saskatchewan. Although W. J. Holland's "Butterfly Guide" (1929) reports that it is probably found on the high mountains of Idaho and Montana, I am unable to find any published record of this butterfly for the United States. Mr. R. A. Leussler, of Omaha, Nebraska, has been consulted, and he knows of no instance of its being taken previously in this country.

The specimen is deposited in the University of Minnesota collection in the Department of Entomology, St. Paul, Minnesota.

R. H. DAGGY, University of Minnesota, St. Paul, Minn.

* Paper No. 1374 of the Scientific Journal Series of the Minnesota Agricultural Experiment Station.

DAS WERDEN EINER GROSSEN ENCYCLOPAEDIE. Eine Jubilaeums-Schrift. by Dr. WILHELM JUNK. W. Junk, 's-Gravenhage (Holland). 1935. Price: 0.80 Dutch florins.

A personal communication to the public in which Dr. Junk describes the development of the "Coleopterorum Catalogus" through the past 25 years, and relates, with pardonable pride, the part he himself has played in this undertaking, not only as its publisher but also as a co-editor. He refers to the "C.C." as a "gigantic encyclopedia" and as "the greatest undertaking in the interests of a special field of natural science that has ever been created on this Earth in any language." "Even after a hundred years it will continue to be the source of all information of the type such a catalogue is designed to furnish. It is difficult to conceive of such a work ever again being created anew, especially in view of the alarming falling off in the number of workers in systematic Entomology."

Linnaeus in his 10th edition described 574 beetles. Dejean, in 1802, listed 910 species, and in 1837 (4th ed.) 22,399. Gemminger and Harold's great catalogue, 1868-76, lists ca. 77,000 species. Contrasted with these figures we find that the "C.C." contains to date 175,666 species. Those not yet listed comprise mainly some of the sub-families of the Curculionidae, a family containing about 70,000 species. The total number of beetles known is estimated at 240,000.

Although the need of a new catalogue was generally felt, the idea of actually publishing such was first suggested by H. Gebien of Hamburg in 1904. At that time Gebien tried to interest G. Kraatz of Berlin; but the latter was too busy organizing a new museum so that in 1906 Gebien turned to S. Schenkling who became the editor of the Catalogus. Three years later, however, before the idea had really matured, the Hungarian E. Csiki had actually set out to publish a new catalogue, some parts of which were ready to go to press. Upon hearing from Schenkling, Csiki immediately gave up his own less ambitious undertaking in favor of the C. C. and it was but shortly after this, in 1910, that the first part of the Catalogus appeared. Since then 141 parts have been issued, with 21,036 pages, making up 27 volumes. Even during the World War publication was not suspended and 15 parts were issued during those years. The work will be completed during the next six years and will consist of 31 volumes, the last volume being the index.

Dr. Junk also tells something of the difficulties he encountered, in finding specialists willing to contribute, and having found them, in guiding their work and in actually obtaining

their copy,—in one instance copy promised him 20 years ago has not yet been received! Altogether 26 scientists have contributed to the catalogue, 23 of them German, 11 French, 7 Austrian and 6 English. Among them were 19 museum workers, 5 university professors, 6 college teachers, 7 public school teachers, 10 officials, 1 physician, 2 attorneys, 1 engineer, 1 business man, 1 confectioner, 4 private citizens and 5 whose occupations are unknown.

After pointing out the scientific importance of the C.C., Dr. Junk goes on to say that its publication has had another effect, an indirect one; for it was the stimulus that "caused by publishing house, as the only one of its kind, to specialize along a line which seeks to counteract the evils of specialization. . . . This it strives to accomplish by devoting itself to summarizing present attainments in various special fields. In the descriptive natural sciences such a summarization can be accomplished largely by a compilation of catalogues. . . . And so, hardly a year after the C.C. was begun, work was started on a similar catalogue of the butterflies and two years later on one of the fossils and, only last year, on one of cave animals." Of these the Fossilium Catalogus will probably exceed in size even the beetle catalogue.

Finally Dr. Junk pays high tribute to Dr. Schenkling the editor, to his ability in maintaining the most friendly relationships between contributors and publisher, to his scentific accomplishments, the universality of his knowledge and his bibliographic and editorial accuracy. In conclusion, it is announced that all the 141 parts of the Coleopterorum Catalogus published to date may now be purchased at the reduced price of RM 1100. At this figure the cost per signature (16 pages) is .080 RM, which Dr. Junk assures us is quite low as compared with usual charge of 2 RM for German scientific publications with a small circulation.

This Jubilaeums-Schrift has also appeared as pages iii to xv of Dr. Junk's "Bibliographia Coleopterologica." This B. C. is a compilation containing, besides the above mentioned, his Catalog No. 87, Coleoptera, comprising pages 149 to 310, which lists entomological Periodica, works on Coleoptera, Coleopterorum Larvae, Coleoptera noxia, a Supplementum: Alii Insectorum ordines, and an index of the families treated in the works listed. This catalog is not only a list of the publications Dr. Junk has for sale but, to some extent, is a very good bibliography of the more important works on the Coleoptera. The B. C. is printed on good paper and bound, making a very serv-

iceable looking book which should be of interest to Coleopterists. The price is given as 10 shillings.

The NEWS extends to Dr. Junk and Dr. Schenkling congratulations on the occasion of the 25th Anniversary of the Coleopterorum Catalogus.

R. G. SCHMIEDER and E. T. CRESSON, JR.

DIPTEROLOGI. Dr. Wilhelm Junk, Publisher. Den Haag, (Holland). 19 pages. Price, Holl. fl. 1.25. This is a list of the working dipterists of the World, with their addresses and their special fields of study and should be a useful list for students of the Diptera.

HYMENOPTERORUM CATALOGUS. Ed. H. HEDICKE. W. Junk, Publisher. The inauguration of this work has just been announced, "as a new link of the chain of my catalogi." It is estimated that this catalog will enumerate more than 150,000 species as compared with 50,000 listed by the Catalogus Hymenopterorum of Dalla Torre. It will be issued in parts, in style conforming with his other catalogs, at the subscription price of 70 cents per signature (of 16 pages) which price will be reduced 10 percent. as soon as 160 subscribers are secured.

This H. C. is the sixth in the series of Dr. Junk's unsurpassed catalogs; a list which also includes the Coleopterorum Catalogus, Lepidopterorum Catalogus, Fossilium Catalogus, Psyllidarum Catalogus (completed, 913 pp.) and the Animalium Cavernarum Catalogus. All of these are indispensible to workers in those fields. Dr. Junk will be 70 years old on February 3, 1936. E. T. CRESSON, JR.

Clusters of Atherix variegata Walk., Mistaken for Rust Patches (Diptera: Leptidae).

W. E. BRITTON, New Haven, Connecticut.

On June 6, two employees of the State Highway Department brought to the Station some flies and a reddish brown deposit from a concrete highway bridge that was constructed three or four years ago over the Housatonic River at Cornwall Bridge, Connecticut. Engineer inspectors had reported that the construction work on this bridge had not been adequately supervised or inspected, inasmuch as rust spots from the steel re-inforcing material showed on the outside of the bridge. The Highway Commissioner sent someone to examine the bridge and it was found that these spots were more or less covered with flies, some of which were alive and others dead. They proved to be *Atherix variegata* Walker, of the Family Leptidae

or Rhagionidae. The egg-masses are cream-colored when first deposited but later turn to reddish brown or fawn color, and these colored areas were mistaken for rust spots. Still later the accumulation of dead flies, dirt and debris gave a distinctly gray color to the deposit. According to the information obtained, the largest discolored spot had an area of about 50 square feet on the crown of the arch under the bridge floor and about 50 feet above the water. Other spots were smaller and nearer the water. One spot of not more than a square foot was on the under side of a cross beam and not more than 15 feet above the water.

Dr. R. B. Friend, of this Department, visited the bridge June 13. Evidently all flies and the egg-mass deposit had been removed from the concrete bridge, but under the old wooden covered bridge near by there were heavy deposits of dead flies and old egg-masses at least half an inch in thickness. Apparently all eggs had hatched, and no living flies were seen. Egg-masses deposited in the laboratory hatched in six days, and the young larvae wriggled about in the water. They are said to be predaceous.

According to literature, the flies of this species cluster in large numbers and lay their eggs on objects over or near the water, and on hatching the young larvae drop into the water. Apparently the larvae live in running water, as there are several records of this species occurring at altitudes of 6,000 and 7,000 feet in Colorado, Utah and Wyoming. There are also many records at lower elevations in New England and New Jersey. The altitude of Cornwall Bridge, Connecticut, is about 500 feet.

If these western records refer to *Atherix variegata*, as Dr. Leonard [1] seems to believe, this species is the one used for food by certain Indian tribes in California, as reported by the late Dr. J. M. Aldrich.[2]

[1] A Revision of the Dipterous Family Rhagionidae, Memoir No. 7, Am. Ent. Soc., p. 82, 1930.
[2] Ent. News, 23, p. 159, 1912.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

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